

updated OXVIG1A.ST25.txt
SEQUENCE LISTING



<110> OXVIG, Claus
OVERGAARD, Michael T.
<120> PREGNANCY-ASSOCIATED PLASMA PROTEIN-A2 (PAPP-A2)
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<140> US 09/983,025
<141> 2001-10-22
<150> US 60/241,840
<151> 2000-10-20
<150> DK PA 2000 01571
<151> 2000-10-20
<160> 26
<170> PatentIn version 3.3
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<211> 8527
<212> DNA
<213> Homo sapiens

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Trp Ala Leu Cys Ser Ala Asn Ser Glu Leu Gly Trp Thr Arg Lys Lys
20 25 30
tcc ttg gtt gag agg gaa cac ctg aat cag gtg ctg ttg gaa gga gaa 144
Ser Leu Val Glu Arg Glu His Leu Asn Gln Val Leu Leu Glu Gly Glu

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	cat His 65	cac His	ctc Leu	ttt Phe	gga Gly	gtc Val 70	tac Tyr	ccc Pro	agc Ser	agg Arg	gct Ala 75	ggg Gly	aac Asn	tac Tyr	cta Leu	agg Arg 80	240
	ccc Pro	tac Tyr	ccc Pro	gtg Val	ggg Gly 85	gag Glu	caa Gln	gaa Glu	atc Ile	cat His 90	cat His	aca Thr	gga Gly	cgc Arg	agc Ser 95	aaa Lys	288
	cca Pro	gac Asp	act Thr	gaa Glu 100	gga Gly	aat Asn	gct Ala	gtg Val	agc Ser 105	ctt Leu	gtt Val	ccc Pro	cca Pro	gac Asp 110	ctg Leu	act Thr	336
	gaa Glu	aat Asn	cca Pro 115	gca Ala	gga Gly	ctg Leu	agg Arg	ggt Gly 120	gca Ala	gtt Val	gaa Glu	gag Glu	ccg Pro 125	gct Ala	gcc Ala	cca Pro	384
	tgg Trp	gta Val 130	ggg Gly	gat Asp	agt Ser	cct Pro	att Ile 135	ggg Gly	caa Gln	tct Ser	gag Glu	ctg Leu 140	ctg Leu	gga Gly	gat Asp	gat Asp	432
	gac Asp 145	gct Ala	tat Tyr	ctc Leu	ggc Gly	aat Asn 150	caa Gln	aga Arg	tcc Ser	aag Lys	gag Glu 155	tct Ser	cta Leu	ggt Gly	gag Glu	gcc Ala 160	480
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updated OXVIG1A.ST25.txt																			
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gac Asp	gga Gly	gac Asp	tgc Cys	tgc Cys 645	gac Asp	ccc Pro	cag Gln	gtg Val	gct Ala 650	gat Asp	gtg Val	cgc Arg	aag Lys	acc Thr 655	tgc Cys			1968
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cca Pro	cct Pro	atg Met	gtc Val	atc Ile	gga Gly	cag Gln	acc Thr	aac Asn	aag Lys	tcc Ser	ctc Leu	act Thr	atc Ile	cac His	tgg Trp			2592

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acc Thr	ttt Phe 890	cgt Arg	cag Gln
tat Tyr	gtg Val	cac His 895	aca Thr
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acc Thr 910	cca Pro	gag Glu	
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cct Pro	cct Pro	gat Asp	gtg Val 920
gag Gln	ccc Pro	tgc Cys	gag Glu 925
cca Pro	agc Ser	tta Leu	
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ctg Leu	tac Tyr	cac His	atg Met 940
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gtc Val	tac Tyr		
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agg Arg	ata Ile	gag Glu 1030	att Ile
gat Asp	gca Ala	gca Ala	ctc Leu 1035
ctg Leu	act Thr	tct Ser	
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gtg Val	agg Arg	tac Tyr	
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gcc Ala	agt Ser	ggt Gly	ttg Leu 1065
ccc Pro	gtg Val	gtg Val	
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cac His	agg Arg	aag Lys 1075	ttc Phe
acg Thr	gac Asp	gtg Val	gag Glu 1080
gtc Val	aca Thr	cct Pro	
3249			
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cag Gln	tac Tyr	caa Gln 1090	gtt Val
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gga Gly	gga Gly	gaa Glu	
3294			
ctg Leu	gga Gly 1100	gaa Glu	gct Ala
cct Pro	cct Pro 1105	ctg Leu	aac Asn
cac His	att Ile	cat His 1110	gga Gly
gct Ala	cct Pro		
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ggg Gly	aag Lys	gtg Val	tca Ser
gag Glu	aga Arg	ctg Leu	gga Gly
gaa Glu	gag Glu	tgt Cys	
3384			

1125

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tac Tyr	atg Met 1160	tat Tyr	gag Glu	gga Gly	gat Asp	ggc Gly 1165	ata Ile	tgt Cys	gaa Glu	cct Pro	ttt Phe 1170	gag Glu	aga Arg	aaa Lys	3519
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gat Asp	caa Gln 1190	tgg Trp	gct Ala	acc Thr	cgg Arg	gct Ala 1195	tac Tyr	tcc Ser	tct Ser	cat His	gaa Glu 1200	gac Asp	aag Lys	aag Lys	3609
aag Lys	tgt Cys 1205	cct Pro	gtt Val	tcc Ser	ttg Leu	gta Val 1210	act Thr	gga Gly	gaa Glu	cct Pro	cat His 1215	tcc Ser	cta Leu	att Ile	3654
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agg Arg	agt Ser 1250	gaa Glu	cag Gln	cca Pro	gaa Glu	ggt Gly 1255	agc Ser	ctg Leu	aag Lys	aaa Lys	gag Glu 1260	gat Asp	gag Glu	gtt Val	3789
tgg Trp	ctc Leu 1265	aaa Lys	gtg Val	tgt Cys	ttc Phe	aat Asn 1270	aga Arg	cca Pro	gga Gly	gag Glu	gcc Ala 1275	aga Arg	gca Ala	att Ile	3834
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cgg Arg	ccc Pro	tgt Cys 1390	ggg Gly
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tgt Cys	ccg Pro	tca Ser	4194
ttg Leu	ctg Leu 1400	ctt Leu	gat Asp
cat His	gct Ala	gat Asp 1405	gtg Val
aac Asn	tgt Cys	acc Thr 1410	tct Ser
ata Ile	ggc Gly	4239	
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aag Lys	tgt Cys	gct Ala 1420	atc Ile
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gga Gly	ttt Phe	gcc Ala	4284
ctt Leu	cag Gln 1430	gcc Ala	agc Ser
agc Ser	agt Ser	ggg Gly	cag Gln 1435
tac Tyr	atc Ile	agg Arg	ccc Pro
atg Met	4329		
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tgt Cys	tct Ser	tct Ser 1450	ggg Gly
cac His	tgg Trp	gac Asp	cag Gln 1455
aat Asn	gtg Val	agc Ser	4374
tgc Cys	ctt Leu 1460	ccc Pro	gtg Val
gac Asp	tgc Cys	ggt Gly 1465	ggt Val
ccc Pro	gac Asp	ccg Pro	tct Ser 1470
ttg Leu	gtg Val	aac Asn	4419
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gga Gly	acc Thr	aaa Lys	ttt Phe 1485
ctg Leu	aaa Lys	cgc Arg	4464
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caa Gln	gga Gly	ctg Leu	agc Ser
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ttg Leu	gag Glu	tgt Cys 1525	gat Asp
gct Ala	ccc Pro	cct Pro	att Ile 1530
att Ile	att Ile	ctg Leu	aat Asn
4599			
gcc Ala	aac Asn 1535	ttg Leu	ctc Leu
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cac His	gac Asp	gtg Val	4644
ggc Gly	acc Thr 1550	atc Ile	tgc Cys
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tat Tyr	gtg Val	gca Ala	4689
gaa Glu	agt Ser 1565	gca Ala	gag Glu
gag Glu	ggt Gly	aaa Lys	gtc Val 1570
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ctg Leu	aag Lys	ata Ile	caa Gln
4734			
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gga Gly	atc Ile	tgg Trp 1585	gag Glu
caa Gln	ggc Gly	agc Ser	tgc Cys 1590
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gtg Val	tgt Cys 1595	gag Glu	cca Pro
ccc Pro	cct Pro	cct Pro 1600	gtg Val
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1625	1630	1635	
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cca cca ccc ccc tca gag ctg aat tct gtg gag tac aaa tgt gaa Pro Pro Pro Pro Ser Glu Leu Asn Ser Val Glu Tyr Lys Cys Glu 1655	1660	1665	5004
caa gga tat ggg att ggt gca gtg tgt tcc cca ttg tgt gta atc Gln Gly Tyr Gly Ile Gly Ala Val Cys Ser Pro Leu Cys Val Ile 1670	1675	1680	5049
ccc ccc agt gac ccc gtg atg cta cct gag aat atc act gct gac Pro Pro Ser Asp Pro Val Met Leu Pro Glu Asn Ile Thr Ala Asp 1685	1690	1695	5094
act ctg gag cac tgg atg gaa cct gtc aaa gtc cag agc att gtg Thr Leu Glu His Trp Met Glu Pro Val Lys Val Gln Ser Ile Val 1700	1705	1710	5139
tgc act ggc cgg cgt caa tgg cac cca gac ccc gtc tta gtc cac Cys Thr Gly Arg Arg Gln Trp His Pro Asp Pro Val Leu Val His 1715	1720	1725	5184
tgc atc cag tca tgt gag ccc ttc caa gca gat ggt tgg tgt gac Cys Ile Gln Ser Cys Glu Pro Phe Gln Ala Asp Gly Trp Cys Asp 1730	1735	1740	5229
act atc aac aac cga gcc tac tgc cac tat gac ggg gga gac tgc Thr Ile Asn Asn Arg Ala Tyr Cys His Tyr Asp Gly Gly Asp Cys 1745	1750	1755	5274
tgc tct tcc aca ctc tcc tcc aag aag gtc att cca ttt gct gct Cys Ser Ser Thr Leu Ser Ser Lys Lys Val Ile Pro Phe Ala Ala 1760	1765	1770	5319
gac tgt gac ctg gat gag tgc acc tgc cgg gac ccc aag gca gaa Asp Cys Asp Leu Asp Glu Cys Thr Cys Arg Asp Pro Lys Ala Glu 1775	1780	1785	5364
gaa aat cag taactgtggg aacaagcccc tccctccact gcctcagagg Glu Asn Gln 1790			5413
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gtttactaag ctaaaaatta ttcattgttc cacacatgct gctgtgaagt tcacattcaa			6013
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updated OXVIG1A.ST25.txt

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gaatatacta	acttttgtca	actttctcaga	actcccaact	ggagtcggtg	agacctagga	6373
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gcaactcagg	tcactgataa	agtggaagga	ctaagacact	gtggtcacag	atcccagcaa	8053
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updated OXVIG1A.ST25.txt

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caggggtgagg agaatgggca gatactgaca gaaattaaag taaagggatt gtgaaagtaa 8293
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tcctgtattc tttgtgatca ctattgagtg cattagttaa cacccaaggg gatggcttga 8413
ttgggaatgt agtgaaagga gctgatctac tgtattgtaa tgtaaaacag ctacagccag 8473
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Trp Ala Leu Cys Ser Ala Asn Ser Glu Leu Gly Trp Thr Arg Lys Lys
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Ser Leu Val Glu Arg Glu His Leu Asn Gln Val Leu Leu Glu Gly Glu
35 40 45

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Arg Cys Trp Leu Gly Ala Lys Val Arg Arg Pro Arg Ala Ser Pro Gln
50 55 60

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His His Leu Phe Gly Val Tyr Pro Ser Arg Ala Gly Asn Tyr Leu Arg
65 70 75 80

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Pro Tyr Pro Val Gly Glu Gln Glu Ile His His Thr Gly Arg Ser Lys
85 90 95

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Pro Asp Thr Glu Gly Asn Ala Val Ser Leu Val Pro Pro Asp Leu Thr
100 105 110

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Glu Asn Pro Ala Gly Leu Arg Gly Ala Val Glu Glu Pro Ala Ala Pro
115 120 125

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Trp Val Gly Asp Ser Pro Ile Gly Gln Ser Glu Leu Leu Gly Asp Asp
130 135 140

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Asp Ala Tyr Leu Gly Asn Gln Arg Ser Lys Glu Ser Leu Gly Glu Ala
145 150 155 160

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Gly Ile Gln Lys Gly Ser Ala Met Ala Ala Thr Thr Thr Thr Ala Ile
165 170 175

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Phe Thr Thr Leu Asn Glu Pro Lys Pro Glu Thr Gln Arg Arg Gly Trp
180 185 190

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updated OXVIG1A.ST25.txt

Ala Lys Ser Arg Gln Arg Arg Gln Val Trp Lys Arg Arg Ala Glu Asp
195 200 205

Gly Gln Gly Asp Ser Gly Ile Ser Ser His Phe Gln Pro Trp Pro Lys
210 215 220

His Ser Leu Lys His Arg Val Lys Lys Ser Pro Pro Glu Glu Ser Asn
225 230 235 240

Gln Asn Gly Gly Glu Gly Ser Tyr Arg Glu Ala Glu Thr Phe Asn Ser
245 250 255

Gln Val Gly Leu Pro Ile Leu Tyr Phe Ser Gly Arg Arg Glu Arg Leu
260 265 270

Leu Leu Arg Pro Glu Val Leu Ala Glu Ile Pro Arg Glu Ala Phe Thr
275 280 285

Val Glu Ala Trp Val Lys Pro Glu Gly Gly Gln Asn Asn Pro Ala Ile
290 295 300

Ile Ala Gly Val Phe Asp Asn Cys Ser His Thr Val Ser Asp Lys Gly
305 310 315 320

Trp Ala Leu Gly Ile Arg Ser Gly Lys Asp Lys Gly Lys Arg Asp Ala
325 330 335

Arg Phe Phe Phe Ser Leu Cys Thr Asp Arg Val Lys Lys Ala Thr Ile
340 345 350

Leu Ile Ser His Ser Arg Tyr Gln Pro Gly Thr Trp Thr His Val Ala
355 360 365

Ala Thr Tyr Asp Gly Arg His Met Ala Leu Tyr Val Asp Gly Thr Gln
370 375 380

Val Ala Ser Ser Leu Asp Gln Ser Gly Pro Leu Asn Ser Pro Phe Met
385 390 395 400

Ala Ser Cys Arg Ser Leu Leu Leu Gly Gly Asp Ser Ser Glu Asp Gly
405 410 415

His Tyr Phe Arg Gly His Leu Gly Thr Leu Val Phe Trp Ser Thr Ala
420 425 430

Leu Pro Gln Ser His Phe Gln His Ser Ser Gln His Ser Ser Gly Glu
435 440 445

Glu Glu Ala Thr Asp Leu Val Leu Thr Ala Ser Phe Glu Pro Val Asn
450 455 460

updated OXVIG1A.ST25.txt

Thr Glu Trp Val Pro Phe Arg Asp Glu Lys Tyr Pro Arg Leu Glu Val
 465 470 475 480
 Leu Gln Gly Phe Glu Pro Glu Pro Glu Ile Leu Ser Pro Leu Gln Pro
 485 490 495
 Pro Leu Cys Gly Gln Thr Val Cys Asp Asn Val Glu Leu Ile Ser Gln
 500 505 510
 Tyr Asn Gly Tyr Trp Pro Leu Arg Gly Glu Lys Val Ile Arg Tyr Gln
 515 520 525
 Val Val Asn Ile Cys Asp Asp Glu Gly Leu Asn Pro Ile Val Ser Glu
 530 535 540
 Glu Gln Ile Arg Leu Gln His Glu Ala Leu Asn Glu Ala Phe Ser Arg
 545 550 555 560
 Tyr Asn Ile Ser Trp Gln Leu Ser Val His Gln Val His Asn Ser Thr
 565 570 575
 Leu Arg His Arg Val Val Leu Val Asn Cys Glu Pro Ser Lys Ile Gly
 580 585 590
 Asn Asp His Cys Asp Pro Glu Cys Glu His Pro Leu Thr Gly Tyr Asp
 595 600 605
 Gly Gly Asp Cys Arg Leu Gln Gly Arg Cys Tyr Ser Trp Asn Arg Arg
 610 615 620
 Asp Gly Leu Cys His Val Glu Cys Asn Asn Met Leu Asn Asp Phe Asp
 625 630 635 640
 Asp Gly Asp Cys Cys Asp Pro Gln Val Ala Asp Val Arg Lys Thr Cys
 645 650 655
 Phe Asp Pro Asp Ser Pro Lys Arg Ala Tyr Met Ser Val Lys Glu Leu
 660 665 670
 Lys Glu Ala Leu Gln Leu Asn Ser Thr His Phe Leu Asn Ile Tyr Phe
 675 680 685
 Ala Ser Ser Val Arg Glu Asp Leu Ala Gly Ala Ala Thr Trp Pro Trp
 690 695 700
 Asp Lys Asp Ala Val Thr His Leu Gly Gly Ile Val Leu Ser Pro Ala
 705 710 715 720
 Tyr Tyr Gly Met Pro Gly His Thr Asp Thr Met Ile His Glu Val Gly
 725 730 735

updated OXVIG1A.ST25.txt

His Val Leu Gly Leu Tyr His Val Phe Lys Gly Val Ser Glu Arg Glu
 740 745 750
 Ser Cys Asn Asp Pro Cys Lys Glu Thr Val Pro Ser Met Glu Thr Gly
 755 760 765
 Asp Leu Cys Ala Asp Thr Ala Pro Thr Pro Lys Ser Glu Leu Cys Arg
 770 775 780
 Glu Pro Glu Pro Thr Ser Asp Thr Cys Gly Phe Thr Arg Phe Pro Gly
 785 790 795 800
 Ala Pro Phe Thr Asn Tyr Met Ser Tyr Thr Asp Asp Asn Cys Thr Asp
 805 810 815
 Asn Phe Thr Pro Asn Gln Val Ala Arg Met His Cys Tyr Leu Asp Leu
 820 825 830
 Val Tyr Gln Gln Trp Thr Glu Ser Arg Lys Pro Thr Pro Ile Pro Ile
 835 840 845
 Pro Pro Met Val Ile Gly Gln Thr Asn Lys Ser Leu Thr Ile His Trp
 850 855 860
 Leu Pro Pro Ile Ser Gly Val Val Tyr Asp Arg Ala Ser Gly Ser Leu
 865 870 875 880
 Cys Gly Ala Cys Thr Glu Asp Gly Thr Phe Arg Gln Tyr Val His Thr
 885 890 895
 Ala Ser Ser Arg Arg Val Cys Asp Ser Ser Gly Tyr Trp Thr Pro Glu
 900 905 910
 Glu Ala Val Gly Pro Pro Asp Val Asp Gln Pro Cys Glu Pro Ser Leu
 915 920 925
 Gln Ala Trp Ser Pro Glu Val His Leu Tyr His Met Asn Met Thr Val
 930 935 940
 Pro Cys Pro Thr Glu Gly Cys Ser Leu Glu Leu Leu Phe Gln His Pro
 945 950 955 960
 Val Gln Ala Asp Thr Leu Thr Leu Trp Val Thr Ser Phe Phe Met Glu
 965 970 975
 Ser Ser Gln Val Leu Phe Asp Thr Glu Ile Leu Leu Glu Asn Lys Glu
 980 985 990
 Ser Val His Leu Gly Pro Leu Asp Thr Phe Cys Asp Ile Pro Leu Thr
 995 1000 1005

updated OXVIG1A.ST25.txt

Ile	Lys	Leu	His	Val	Asp	Gly	Lys	Val	Ser	Gly	Val	Lys	Val	Tyr
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Thr	Phe	Asp	Glu	Arg	Ile	Glu	Ile	Asp	Ala	Ala	Leu	Leu	Thr	Ser
	1025					1030					1035			
Gln	Pro	His	Ser	Pro	Leu	Cys	Ser	Gly	Cys	Arg	Pro	Val	Arg	Tyr
	1040					1045					1050			
Gln	Val	Leu	Arg	Asp	Pro	Pro	Phe	Ala	Ser	Gly	Leu	Pro	Val	Val
	1055					1060					1065			
Val	Thr	His	Ser	His	Arg	Lys	Phe	Thr	Asp	Val	Glu	Val	Thr	Pro
	1070					1075					1080			
Gly	Gln	Met	Tyr	Gln	Tyr	Gln	Val	Leu	Ala	Glu	Ala	Gly	Gly	Glu
	1085					1090					1095			
Leu	Gly	Glu	Ala	Ser	Pro	Pro	Leu	Asn	His	Ile	His	Gly	Ala	Pro
	1100					1105					1110			
Tyr	Cys	Gly	Asp	Gly	Lys	Val	Ser	Glu	Arg	Leu	Gly	Glu	Glu	Cys
	1115					1120					1125			
Asp	Asp	Gly	Asp	Leu	Val	Ser	Gly	Asp	Gly	Cys	Ser	Lys	Val	Cys
	1130					1135					1140			
Glu	Leu	Glu	Glu	Gly	Phe	Asn	Cys	Val	Gly	Glu	Pro	Ser	Leu	Cys
	1145					1150					1155			
Tyr	Met	Tyr	Glu	Gly	Asp	Gly	Ile	Cys	Glu	Pro	Phe	Glu	Arg	Lys
	1160					1165					1170			
Thr	Ser	Ile	Val	Asp	Cys	Gly	Ile	Tyr	Thr	Pro	Lys	Gly	Tyr	Leu
	1175					1180					1185			
Asp	Gln	Trp	Ala	Thr	Arg	Ala	Tyr	Ser	Ser	His	Glu	Asp	Lys	Lys
	1190					1195					1200			
Lys	Cys	Pro	Val	Ser	Leu	Val	Thr	Gly	Glu	Pro	His	Ser	Leu	Ile
	1205					1210					1215			
Cys	Thr	Ser	Tyr	His	Pro	Asp	Leu	Pro	Asn	His	Arg	Pro	Leu	Thr
	1220					1225					1230			
Gly	Trp	Phe	Pro	Cys	Val	Ala	Ser	Glu	Asn	Glu	Thr	Gln	Asp	Asp
	1235					1240					1245			
Arg	Ser	Glu	Gln	Pro	Glu	Gly	Ser	Leu	Lys	Lys	Glu	Asp	Glu	Val
	1250					1255					1260			

updated OXVIG1A.ST25.txt

Trp	Leu	Lys	Val	Cys	Phe	Asn	Arg	Pro	Gly	Glu	Ala	Arg	Ala	Ile
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Phe	Ile	Phe	Leu	Thr	Thr	Asp	Gly	Leu	Val	Pro	Gly	Glu	His	Gln
	1280					1285					1290			
Gln	Pro	Thr	Val	Thr	Leu	Tyr	Leu	Thr	Asp	Val	Arg	Gly	Ser	Asn
	1295					1300					1305			
His	Ser	Leu	Gly	Thr	Tyr	Gly	Leu	Ser	Cys	Gln	His	Asn	Pro	Leu
	1310					1315					1320			
Ile	Ile	Asn	Val	Thr	His	His	Gln	Asn	Val	Leu	Phe	His	His	Thr
	1325					1330					1335			
Thr	Ser	Val	Leu	Leu	Asn	Phe	Ser	Ser	Pro	Arg	Val	Gly	Ile	Ser
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Ala	Val	Ala	Leu	Arg	Thr	Ser	Ser	Arg	Ile	Gly	Leu	Ser	Ala	Pro
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Ser	Asn	Cys	Ile	Ser	Glu	Asp	Glu	Gly	Gln	Asn	His	Gln	Gly	Gln
	1370					1375					1380			
Ser	Cys	Ile	His	Arg	Pro	Cys	Gly	Lys	Gln	Asp	Ser	Cys	Pro	Ser
	1385					1390					1395			
Leu	Leu	Leu	Asp	His	Ala	Asp	Val	Val	Asn	Cys	Thr	Ser	Ile	Gly
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Pro	Gly	Leu	Met	Lys	Cys	Ala	Ile	Thr	Cys	Gln	Arg	Gly	Phe	Ala
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Leu	Gln	Ala	Ser	Ser	Gly	Gln	Tyr	Ile	Arg	Pro	Met	Gln	Lys	Glu
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Ile	Leu	Leu	Thr	Cys	Ser	Ser	Gly	His	Trp	Asp	Gln	Asn	Val	Ser
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Cys	Leu	Pro	Val	Asp	Cys	Gly	Val	Pro	Asp	Pro	Ser	Leu	Val	Asn
	1460					1465					1470			
Tyr	Ala	Asn	Phe	Ser	Cys	Ser	Glu	Gly	Thr	Lys	Phe	Leu	Lys	Arg
	1475					1480					1485			
Cys	Ser	Ile	Ser	Cys	Val	Pro	Pro	Ala	Lys	Leu	Gln	Gly	Leu	Ser
	1490					1495					1500			
Pro	Trp	Leu	Thr	Cys	Leu	Glu	Asp	Gly	Leu	Trp	Ser	Leu	Pro	Glu
	1505					1510					1515			

updated OXVIG1A.ST25.txt

Val	Tyr	Cys	Lys	Leu	Glu	Cys	Asp	Ala	Pro	Pro	Ile	Ile	Leu	Asn
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Ala	Asn	Leu	Leu	Leu	Pro	His	Cys	Leu	Gln	Asp	Asn	His	Asp	Val
	1535					1540					1545			
Gly	Thr	Ile	Cys	Lys	Tyr	Glu	Cys	Lys	Pro	Gly	Tyr	Tyr	Val	Ala
	1550					1555					1560			
Glu	Ser	Ala	Glu	Gly	Lys	Val	Arg	Asn	Lys	Leu	Leu	Lys	Ile	Gln
	1565					1570					1575			
Cys	Leu	Glu	Gly	Gly	Ile	Trp	Glu	Gln	Gly	Ser	Cys	Ile	Pro	Val
	1580					1585					1590			
Val	Cys	Glu	Pro	Pro	Pro	Pro	Val	Phe	Glu	Gly	Met	Tyr	Glu	Cys
	1595					1600					1605			
Thr	Asn	Gly	Phe	Ser	Leu	Asp	Ser	Gln	Cys	Val	Leu	Asn	Cys	Asn
	1610					1615					1620			
Gln	Glu	Arg	Glu	Lys	Leu	Pro	Ile	Leu	Cys	Thr	Lys	Glu	Gly	Leu
	1625					1630					1635			
Trp	Thr	Gln	Glu	Phe	Lys	Leu	Cys	Glu	Asn	Leu	Gln	Gly	Glu	Cys
	1640					1645					1650			
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Gln	Gly	Tyr	Gly	Ile	Gly	Ala	Val	Cys	Ser	Pro	Leu	Cys	Val	Ile
	1670					1675					1680			
Pro	Pro	Ser	Asp	Pro	Val	Met	Leu	Pro	Glu	Asn	Ile	Thr	Ala	Asp
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Thr	Leu	Glu	His	Trp	Met	Glu	Pro	Val	Lys	Val	Gln	Ser	Ile	Val
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Thr	Ile	Asn	Asn	Arg	Ala	Tyr	Cys	His	Tyr	Asp	Gly	Gly	Asp	Cys
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updated OXVIG1A.ST25.txt

Asp Cys Asp Leu Asp Glu Cys Thr Cys Arg Asp Pro Lys Ala Glu
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Glu Asn Gln
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<400> 3

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<212> DNA
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<220>
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<210> 5

<211> 20
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> primer PR-mid5
 <400> 5
 gctcacacac cacaggaatg 20

<210> 6
 <211> 22
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> primer PR-mid3
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<210> 7
 <211> 23
 <212> DNA
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 <223> primer PR-N5
 <400> 7
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<210> 8
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 <223> primer PR-N3
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<210> 9
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	updated OXVIG1A.ST25.txt	
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cttactgcct ctgaggcagt gg		22
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Asn Ser Ala Val Asp
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 Page 20

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Leu Gly Cys Gly Leu Ala Glu Arg Pro Arg Arg Ala Arg Arg Asp Pro
20 25 30

updated OXVIG1A.ST25.txt

Arg Ala Gly Arg Pro Pro Arg Pro Ala Ala Gly Pro Ala Thr Cys Ala
35 40 45

Thr Arg Gly Pro Arg Pro Pro Arg Leu Ala Ala Ala Ala Ala Ala Ala
50 55 60

Gly Arg Ala Trp Glu Ala Val Arg Val Pro Arg Arg Arg Gln Gln Arg
65 70 75 80

Glu Ala Arg Gly Ala Thr Glu Glu Pro Ser Pro Pro Ser Arg Ala Leu
85 90 95

Tyr Phe Ser Gly Arg Gly Glu Gln Leu Arg Val Leu Arg Ala Asp Leu
100 105 110

Glu Leu Pro Arg Asp Ala Phe Thr Leu Gln Val Trp Leu Arg Ala Glu
115 120 125

Gly Gly Gln Arg Ser Pro Ala Val Ile Thr Gly Leu Tyr Asp Lys Cys
130 135 140

Ser Tyr Ile Ser Arg Asp Arg Gly Trp Val Val Gly Ile His Thr Ile
145 150 155 160

Ser Asp Gln Asp Asn Lys Asp Pro Arg Tyr Phe Phe Ser Leu Lys Thr
165 170 175

Asp Arg Ala Arg Gln Val Thr Thr Ile Asn Ala His Arg Ser Tyr Leu
180 185 190

Pro Gly Gln Trp Val Tyr Leu Ala Ala Thr Tyr Asp Gly Gln Phe Met
195 200 205

Lys Leu Tyr Val Asn Gly Ala Gln Val Ala Thr Ser Gly Glu Gln Val
210 215 220

Gly Gly Ile Phe Ser Pro Leu Thr Gln Lys Cys Lys Val Leu Met Leu
225 230 235 240

Gly Gly Ser Ala Leu Asn His Asn Tyr Arg Gly Tyr Ile Glu His Phe
245 250 255

Ser Leu Trp Lys Val Ala Arg Thr Gln Arg Glu Ile Leu Ser Asp Met
260 265 270

Glu Thr His Gly Ala His Thr Ala Leu Pro Gln Leu Leu Leu Gln Glu
275 280 285

Asn Trp Asp Asn Val Lys His Ala Trp Ser Pro Met Lys Asp Gly Ser
290 295 300

updated OXVIG1A.ST25.txt

Ser Pro Lys Val Glu Phe Ser Asn Ala His Gly Phe Leu Leu Asp Thr
305 310 315 320

Ser Leu Glu Pro Pro Leu Cys Gly Gln Thr Leu Cys Asp Asn Thr Glu
325 330 335

Val Ile Ala Ser Tyr Asn Gln Leu Ser Ser Phe Arg Gln Pro Lys Val
340 345 350

Val Arg Tyr Arg Val Val Asn Leu Tyr Glu Asp Asp His Lys Asn Pro
355 360 365

Thr Val Thr Arg Glu Gln Val Asp Phe Gln His His Gln Leu Ala Glu
370 375 380

Ala Phe Lys Gln Tyr Asn Ile Ser Trp Glu Leu Asp Val Leu Glu Val
385 390 395 400

Ser Asn Ser Ser Leu Arg Arg Arg Leu Ile Leu Ala Asn Cys Asp Ile
405 410 415

Ser Lys Ile Gly Asp Glu Asn Cys Asp Pro Glu Cys Asn His Thr Leu
420 425 430

Thr Gly His Asp Gly Gly Asp Cys Arg His Leu Arg His Pro Ala Phe
435 440 445

Val Lys Lys Gln His Asn Gly Val Cys Asp Met Asp Cys Asn Tyr Glu
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Arg Phe Asn Phe Asp Gly Gly Glu Cys Cys Asp Pro Glu Ile Thr Asn
465 470 475 480

Val Thr Gln Thr Cys Phe Asp Pro Asp Ser Pro His Arg Ala Tyr Leu
485 490 495

Asp Val Asn Glu Leu Lys Asn Ile Leu Lys Leu Asp Gly Ser Thr His
500 505 510

Leu Asn Ile Phe Phe Ala Lys Ser Ser Glu Glu Glu Leu Ala Gly Val
515 520 525

Ala Thr Trp Pro Trp Asp Lys Glu Ala Leu Met His Leu Gly Gly Ile
530 535 540

Val Leu Asn Pro Ser Phe Tyr Gly Met Pro Gly His Thr His Thr Met
545 550 555 560

Ile His Glu Ile Gly His Ser Leu Gly Leu Tyr His Val Phe Arg Gly
565 570 575

updated OXVIG1A.ST25.txt

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Ser	Phe	Glu	Thr	Gly	Asp	Leu	Cys	Asn	Asp	Thr	Asn	Pro	Ala	Pro	Lys
		595					600					605			
His	Lys	Ser	Cys	Gly	Asp	Pro	Gly	Pro	Gly	Asn	Asp	Thr	Cys	Gly	Phe
	610					615					620				
His	Ser	Phe	Phe	Asn	Thr	Pro	Tyr	Asn	Asn	Phe	Met	Ser	Tyr	Ala	Asp
625					630					635					640
Asp	Asp	Cys	Thr	Asp	Ser	Phe	Thr	Pro	Asn	Gln	Val	Ala	Arg	Met	His
				645					650					655	
Cys	Tyr	Leu	Asp	Leu	Val	Tyr	Gln	Gly	Trp	Gln	Pro	Ser	Arg	Lys	Pro
			660					665					670		
Ala	Pro	Val	Ala	Leu	Ala	Pro	Gln	Val	Leu	Gly	His	Thr	Thr	Asp	Ser
		675					680					685			
Val	Thr	Leu	Glu	Trp	Phe	Pro	Pro	Ile	Asp	Gly	His	Phe	Phe	Glu	Arg
	690					695					700				
Glu	Leu	Gly	Ser	Ala	Cys	His	Leu	Cys	Leu	Glu	Gly	Arg	Ile	Leu	Val
705					710					715					720
Gln	Tyr	Ala	Ser	Asn	Ala	Ser	Ser	Pro	Met	Pro	Cys	Ser	Pro	Ser	Gly
				725					730					735	
His	Trp	Ser	Pro	Arg	Glu	Ala	Glu	Gly	His	Pro	Asp	Val	Glu	Gln	Pro
			740					745					750		
Cys	Lys	Ser	Ser	Val	Arg	Thr	Trp	Ser	Pro	Asn	Ser	Ala	Val	Asn	Pro
		755					760					765			
His	Thr	Val	Pro	Pro	Ala	Cys	Pro	Glu	Pro	Gln	Gly	Cys	Tyr	Leu	Glu
	770					775					780				
Leu	Glu	Phe	Leu	Tyr	Pro	Leu	Val	Pro	Glu	Ser	Leu	Thr	Ile	Trp	Val
785					790					795					800
Thr	Phe	Val	Ser	Thr	Asp	Trp	Asp	Ser	Ser	Gly	Ala	Val	Asn	Asp	Ile
				805					810					815	
Lys	Leu	Leu	Ala	Val	Ser	Gly	Lys	Asn	Ile	Ser	Leu	Gly	Pro	Gln	Asn
			820					825					830		
Val	Phe	Cys	Asp	Val	Pro	Leu	Thr	Ile	Arg	Leu	Trp	Asp	Val	Gly	Glu
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updated OXVIG1A.ST25.txt

Glu Val Tyr Gly Ile Gln Ile Tyr Thr Leu Asp Glu His Leu Glu Ile
850 855 860

Asp Ala Ala Met Leu Thr Ser Thr Ala Asp Thr Pro Leu Cys Leu Gln
865 870 875 880

Cys Lys Pro Leu Lys Tyr Lys Val Val Arg Asp Pro Pro Leu Gln Met
885 890 895

Asp Val Ala Ser Ile Leu His Leu Asn Arg Lys Phe Val Asp Met Asp
900 905 910

Leu Asn Leu Gly Ser Val Tyr Gln Tyr Trp Val Ile Thr Ile Ser Gly
915 920 925

Thr Glu Glu Ser Glu Pro Ser Pro Ala Val Thr Tyr Ile His Gly Arg
930 935 940

Gly Tyr Cys Gly Asp Gly Ile Ile Gln Lys Asp Gln Gly Glu Gln Cys
945 950 955 960

Asp Asp Met Asn Lys Ile Asn Gly Asp Gly Cys Ser Leu Phe Cys Arg
965 970 975

Gln Glu Val Ser Phe Asn Cys Ile Asp Glu Pro Ser Arg Cys Tyr Phe
980 985 990

His Asp Gly Asp Gly Val Cys Glu Glu Phe Glu Gln Lys Thr Ser Ile
995 1000 1005

Lys Asp Cys Gly Val Tyr Thr Pro Gln Gly Phe Leu Asp Gln Trp
1010 1015 1020

Ala Ser Asn Ala Ser Val Ser His Gln Asp Gln Gln Cys Pro Gly
1025 1030 1035

Trp Val Ile Ile Gly Gln Pro Ala Ala Ser Gln Val Cys Arg Thr
1040 1045 1050

Lys Val Ile Asp Leu Ser Glu Gly Ile Ser Gln His Ala Trp Tyr
1055 1060 1065

Pro Cys Thr Ile Ser Tyr Pro Tyr Ser Gln Leu Ala Gln Thr Thr
1070 1075 1080

Phe Trp Leu Arg Ala Tyr Phe Ser Gln Pro Met Val Ala Ala Ala
1085 1090 1095

Val Ile Val His Leu Val Thr Asp Gly Thr Tyr Tyr Gly Asp Gln
1100 1105 1110

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Leu	Ile	Ile	Pro	Val	Val	His	Asp	Leu	Ser	Gln	Pro	Phe	Tyr	His
1145						1150					1155			
Ser	Gln	Ala	Val	Arg	Val	Ser	Phe	Ser	Ser	Pro	Leu	Val	Ala	Ile
1160						1165					1170			
Ser	Gly	Val	Ala	Leu	Arg	Ser	Phe	Asp	Asn	Phe	Asp	Pro	Val	Thr
1175						1180					1185			
Leu	Ser	Ser	Cys	Gln	Arg	Gly	Glu	Thr	Tyr	Ser	Pro	Ala	Glu	Gln
1190						1195					1200			
Ser	Cys	Val	His	Phe	Ala	Cys	Glu	Lys	Thr	Asp	Cys	Pro	Glu	Leu
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Ala	Val	Glu	Asn	Ala	Ser	Leu	Asn	Cys	Ser	Ser	Ser	Asp	Arg	Tyr
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His	Gly	Ala	Gln	Cys	Thr	Val	Ser	Cys	Arg	Thr	Gly	Tyr	Val	Leu
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Gln	Ile	Arg	Arg	Asp	Asp	Glu	Leu	Ile	Lys	Ser	Gln	Thr	Gly	Pro
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Ser	Val	Thr	Val	Thr	Cys	Thr	Glu	Gly	Lys	Trp	Asn	Lys	Gln	Val
1265						1270					1275			
Ala	Cys	Glu	Pro	Val	Asp	Cys	Ser	Ile	Pro	Asp	His	His	Gln	Val
1280						1285					1290			
Tyr	Ala	Ala	Ser	Phe	Ser	Cys	Pro	Glu	Gly	Thr	Thr	Phe	Gly	Ser
1295						1300					1305			
Gln	Cys	Ser	Phe	Gln	Cys	Arg	His	Pro	Ala	Gln	Leu	Lys	Gly	Asn
1310						1315					1320			
Asn	Ser	Leu	Leu	Thr	Cys	Met	Glu	Asp	Gly	Leu	Trp	Ser	Phe	Pro
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Glu	Ala	Leu	Cys	Glu	Leu	Met	Cys	Leu	Ala	Pro	Pro	Pro	Val	Pro
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Asn	Ala	Asp	Leu	Gln	Thr	Ala	Arg	Cys	Arg	Glu	Asn	Lys	His	Lys
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Val	Gly	Ser	Phe	Cys	Lys	Tyr	Lys	Cys	Lys	Pro	Gly	Tyr	His	Val
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Pro	Gly	Ser	Ser	Arg	Lys	Ser	Lys	Lys	Arg	Ala	Phe	Lys	Thr	Gln
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Cys	Thr	Gln	Asp	Gly	Ser	Trp	Gln	Glu	Gly	Ala	Cys	Val	Pro	Val
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Thr	Cys	Asp	Pro	Pro	Pro	Pro	Lys	Phe	His	Gly	Leu	Tyr	Gln	Cys
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Thr	Asn	Gly	Phe	Gln	Phe	Asn	Ser	Glu	Cys	Arg	Ile	Lys	Cys	Glu
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Arg	Lys	Asp	Gly	Thr	Trp	Asn	Gly	Ser	Phe	His	Val	Cys	Gln	Glu
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Met	Gln	Gly	Gln	Cys	Ser	Val	Pro	Asn	Glu	Leu	Asn	Ser	Asn	Leu
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Lys	Leu	Gln	Cys	Pro	Asp	Gly	Tyr	Ala	Ile	Gly	Ser	Glu	Cys	Ala
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1505						1510					1515			
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Pro	Ala	Leu	Ile	His	Cys	Val	Lys	Gly	Cys	Glu	Pro	Phe	Met	Gly
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1580						1585					1590			
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